

ITEMS

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APPLICATIONS OF MATHEMATICS IN SOCIAL PSYCHOLOGICAL RESEARCH

by George A. Miller *

THE amount of formal symbolism that finds its way into social science journals has increased dramatically in recent years. I base my judgment of the increase on personal impressions—certainly the amount of mathematics that I encounter in the psychological literature has increased in both quantity and quality since the days of my graduate study. And I think I see a similar trend in the neighboring fields of economics, sociology, anthropology, and political science. One reason the Committee on Mathematical Training of Social Scientists has been so very effective is that it has filled a need created by this recent growth of interest in the more rigorous forms of argument.

The time seems to have come, however, to turn the training function over to the colleges and universities where it properly belongs. We certainly should not encourage students to postpone their mathematical education in the expectation that they can fill it in later by spending two months in a postdoctoral institute sponsored by the Council—such a situation would defeat most of the purposes the committee and the Council hoped to promote. But even though the training function should become secondary, the mathematical fashion is still with us.

Presumably, any new functions that the Council might undertake in this direction would be oriented

more toward the substantive content of the social sciences involved, and less toward teaching the general concepts and methods of mathematics that are more or less neutral with respect to content. Insofar as Bertrand Russell's claim that a mathematician is a man who never knows what he is talking about is true, it is possible for him to talk to all varieties of social scientists simultaneously. But that happy stage is passing, and specialization with respect to content is becoming increasingly necessary. Learning theorists, game theorists, communication theorists, economic theorists, linear programming theorists, and the many other theorists who have been learning their mathematical fundamentals together in recent years can still compare problems as a matter of coffee conversation, but when the coffee is finished they go back to work in relative isolation. If the Council is to contribute to this newer phase of the development of mathematical theories in the various social sciences, it may have to face these facts of specialization with a consequent proliferation of its committees.

"TEACHING MODELS" AND

"WORKING MODELS"

The shift of emphasis from training to substantive content also has some implications for the kind of mathematical models we should be interested in. For example, a number of the mathematical models that have been proposed do not really contribute much to our understanding of social science problems in any substantive way, even though they are useful for teaching mathematical concepts in a social science setting. I think any person with competence in some given area of

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mathematics would be able to think of ways to talk about that area in the language of social science. A good mathematician can produce mathematical models by the book. The result, however fascinating it may be mathematically, is seldom a substantive contribution to social science. I must cite one or two examples to give you the flavor of what I mean when I distinguish between "teaching models" and "working models." For example, if I wanted to teach something about the mathematical concept of differentiation, I might phrase it in terms of the shape of the learning curve and extract from the psychological literature various functions that are positively or negatively accelerated. Ebbinghaus, Thurstone, Hull, and others have given us a good supply of functions that can be used in examples. When I had finished, the student might know more mathematics, but I doubt that he would have learned much about the processes of learning and forgetting.

Or, to take a current example, the recent work on graph theory that has aroused the interest of many social psychologists is, in my opinion, much more useful for teaching certain algebraic concepts from the general theory of relations than it is for shedding new light on the problems of social organization. Again, it seems to me that some of the models that have been proposed for the general problem of psychological measurement are more useful in teaching the student how to axiomatize his ideas than they are for any practical problems of measurement in research.

So long as our attention is focused on teaching mathematical concepts to social scientists, we can be rather tolerant of all kinds of models. But when we turn to the substantive contributions that a mathematical model can make, I think we must simultaneously tighten our standards of judgment. In addition to mathematical virtuosity, we should also demand substantive insight. I am hopeful that we are raising a generation of social scientists who are sophisticated in both formal and empirical matters.

Now let us consider some of the major fields in which the application of mathematics to the problems of men has led to some substantive progress.

A FEW EXAMPLES

No doubt the most generally important application is to be found in the multiple uses we make of mathematical statistics. In the training program outlined by the committee, mathematical statistics was explicitly excluded because it is being competently taught in the universities, and it is such a large and well-developed field that it could have crowded out any consideration of nonstatistical models. Now, however, these reasons

are irrelevant and we must again put statistical problems first on our list. I am not competent to assess the current status of statistics, but I believe there is good reason to think it is a healthy, vigorous, and rapidly growing branch of applied mathematics. As social scientists, our major concern is not to nurture it, but to keep up with it.

Closely related to the statistical problems are the problems of subjective measurement. Here I have in mind the development of scaling theory through the work of Thurstone, Lazarsfeld, Coombs, Guttman, Stevens, and many others. The theory of mental tests, which draws heavily upon factor analysis, might also be included here as a problem in multidimensional measurement.

I think that the application of mathematics to the problems of learning requires little comment. Hull established the respectability of systematic, formalistic theories of learning complete with mathematical functions, and during the last five years this development has fallen under new management due to the work of Estes and of Bush and Mosteller. They are, with the aid of numerous even younger men, rapidly exploring many variations on a stochastic theme. The only danger I see in this movement is that its exponents may forget, or even deny, the existence of those kinds of learning or aspects of learning that their theories say nothing about. This danger is not unique to learning theory, of course. There is always a strong temptation to mistake the theory—especially a successful theory—for the actuality and to define the limits of a natural phenomenon in terms of the limits of our understanding of it. In any event, learning theory is a beehive of activity and in a few years it should become increasingly clear how far our present concepts can carry us and what kinds of problems are going to require some new ideas.

At this point I should like to be able to say something about theories of economic behavior. The analysis of economic equilibria following from the classic work of Pareto, Keynes, and others and the more recent developments of game theory and of linear programming, promoted by a generally high level of mathematical competence among theoretical economists, constitute an extensive and enviable achievement in the application of mathematical reasoning to social phenomena. As a psychologist, the facet of this large field I know best is the theory of consumer behavior, where the problems of measuring utility and of predicting choices are as much psychological as they are economic in nature.

THEORY OF CHOICE BEHAVIOR

In this connection I should like to describe a recent contribution by Duncan Luce that, in my opinion, is an

extremely important insight into the theory of choice behavior. To put his mathematics into colloquial form, Luce begins with the following assumption: if a person chooses object x from a set of alternatives, he will also choose x from any subset that includes it. If you choose steak from a menu containing a dozen different entrees, then you would also choose steak from any menu that consisted of a subset of those entrees (including steak). This rather innocuous assumption has usually been referred to as "independence of irrelevant alternatives," and at first glance it does not seem especially powerful. Luce, however, is able to show that when this simple assumption is known to be true, it has an enormous range of consequences. In economic terms it provides a method of determining the scale of utility. If Weber's law is also true, it provides for the power functions that Stevens has obtained in subjective scaling of sensory magnitudes. When applied to the choices made in a learning experiment, it produces a new class of non-linear learning models. Its mileage, measured in consequences per assumption, is startling. It is one of those rare insights that reveal similarities in a variety of areas that previously seemed rather remote and isolated. It will take a few years to assess the validity of the assumption that our choices are independent of irrelevant alternatives, but the least that can result is a clearer understanding of a set of related phenomena.

The link that enables Luce to apply his axiom in so many different directions is, of course, the process of choice. I think Luce is right when he argues that most of the important applications of mathematics to social science during the past decade have been concerned in one way or another with the mathematical description of choices. The economist is interested in what goods a consumer will choose. The game theorist is interested in what strategy a player will choose. The psychologist, both in sensory and behavioral experiments, is interested in what response an organism will choose. By finding something important about the theory of choice behavior in general, Luce was able to contribute simultaneously to a variety of problems.

One place where choice has been treated explicitly is in the recent development of a measure of information. According to information theory, a source chooses a message from a set of alternative messages that he might have chosen, and the unit of measurement, the "bit" of information, is the amount contained in a choice from two equiprobable alternatives. I do not want to get involved with information theory here, because it is not a psychological theory, but Luce has shown that the assumption of the independence of irrelevant alternatives is contained implicitly in the derivation of the information measure. This extends

even further the range of applications of this remarkable little axiom.

SOME OTHER APPLICATIONS

Closely related to information theory in many ways, however, is a bona fide social science theory that is developing in linguistics, largely through the work of Noam Chomsky. Linguists have said for many years that their study of language was just as formal and rigorous as the study of mathematics, but Chomsky is the first linguist who has made this formalism obvious to someone familiar with mathematics. Chomsky has considered a variety of mathematical representations of grammatical structure and has arrived at a method for characterizing a finite machine that would generate all grammatical sentences.

We have had a variety of suggestions for dealing with social organization in mathematical terms. Lewin's "topology," Dodd's "dimensions of society," and Zipf's use of the harmonic law as an index of social equilibrium are well-known but rather superficial examples. A much higher level of mathematical sophistication can be found in Richardson's differential equations for war and peace, Rashevsky's "mathematical biology of social behavior," Marschak's economic theory of teams, or Simon's mathematizations of Homans' and Festinger's theories. In my opinion the value of this high-quality thought has been far less than one would expect, for the reason that the measurement problems have not been solved. The data are seldom sufficient to the theories thereof. In many of these theoretical attempts it is assumed either that no measure is needed, or that some measure could be defined, or that some statistic might be used as a measure of something else. Until these assumptions are supported by something more substantial than credulity, we shall not get very far. In short, I suspect that mathematical models of social systems are far ahead of our ability to characterize those systems in quantitative terms.

Finally, there is a kind of model building that is a bit different from what we are accustomed to. It involves the use of digital computers, and since these machines are still relatively new and unfamiliar it is not entirely clear how we should use them or what kind of results we can expect from them. But there is a great deal of interest in using them on social science problems, largely on the part of people outside the social sciences—people who know and work with computers. As part of this interest in "artificial intelligence," computers have been programmed to discriminate, to recognize visual and auditory patterns, to learn, to play chess, to deduce theorems, to generate sentences, to translate from one

language to another, and to carry on a great variety of humanoid activities. In the most interesting cases these programs have been based on some theory of how a human being performs these functions and, viewed in this light, they open up a vast variety of new kinds of models and a new way of testing them. In moments of enthusiasm I sometimes wonder whether the digital computer may not be as important to the social sciences as the microscope was to the biological sciences. But whether this enthusiasm is justified or not, I think social scientists should be alert to the possibilities that are becoming increasingly available, and in this connection the Council might perform a valuable service.

MATHEMATICS AND THINKING

That concludes my sketch of what is cooking in the mathematical kitchens of social science. Whether we like it or not, I think we can expect the menu to continue to increase in variety and quality. I have heard social scientists debate whether this development is a Good Thing or a distraction from our proper duties to society. This argument has always struck me as beside the point. As a social scientist I am devoted to promoting the widest application of intelligence in the study and solution of the problems of men. My basic faith is that thinking is a Good Thing, and mathematics is one way

to keep your thinking clear and relevant. But the essential process is the thinking, not the mathematics. Observation, experimentation, analogy, and intuition are Good Things, too, and we should use them all to the best of our abilities.

I often get the impression that many of our colleagues regard mathematics as the sum total of all the axioms and theorems that have been written down in mathematics books, and fail completely to see mathematics as a way of thinking. The application of mathematics is not a process of searching through the mathematics library until one finds an equation that fits one's problem. If we work this way, the result is likely to be a distortion of our problem into a way of thinking that is not suited to it—we dress our intellectual child in mathematical hand-me-downs that simply do not fit him—and then we may be worse off than if we had never tried to think at all, for we are thinking incorrectly.

Few men are capable of developing a calculus appropriate to their own problems, and not many of them have adopted the problems of social science as the subject of their thinking. For the rest of us, the danger of misusing mathematics is certainly far greater. But I have faith in the slow process of scientific sedimentation; the good ideas, whether they are mathematical or not, will rise to the surface and the rest will eventually sink to the bottom and be forgotten.

ACTIVITIES OF THE COMMITTEE ON MATHEMATICAL TRAINING OF SOCIAL SCIENTISTS, 1952-57, AND SUGGESTIONS FOR THE FUTURE

by William G. Madow *

IN December 1957 the Committee on Mathematical Training of Social Scientists will have been in existence for five years, and it is appropriate that a summary of our work be given. In my present remarks I shall recall why the committee was established; I shall summarize the work that has been done; and I shall suggest what the committee might do in a further attempt to achieve its present objectives. But all these remarks will be, in a

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sense, preliminary. The climate of thinking about mathematics in social science research has changed so greatly that it is far more important to suggest what should be the scope of the committee today; that is the fourth topic I shall discuss.

The committee was established by the Council in order to improve the mathematical training available to social scientists. Perhaps I should mention that the committee did not undertake to justify the study of mathematics by social scientists by pointing to great achievements possible only through the use of mathematics; rather it thought that the many reasons¹ that led social scientists to want to study mathematics would grow rather than decline, and that the ferment in mathematical education was so great that more and more oppor-

¹ These reasons are summarized in the committee's statement, "Recommended Policies for the Mathematical Training of Social Scientists," *Items*, June 1955, page 14.

tunities for improving their mathematical education would become available to social scientists. It now seems that our expectations were justified: articles in social science journals increasingly use mathematics and mathematical statistics; and continuing efforts to improve the mathematics curriculum are being made under the leadership of a committee of the Mathematical Association of America to which I shall refer later.

During the past five years the committee has planned and carried through five summer institutes; it has prepared a statement recommending policies for the mathematical training of social scientists, published this in *Items*² and in *Econometrica*, and widely distributed reprints of the statement; and it has supported the preparation by various persons of material that, it is hoped, will improve the mathematical training available to social scientists. Members of the committee and of the staffs of its institutes have also spoken at meetings of mathematical and other societies on the objectives and activities of the committee.

TRAINING INSTITUTES AND MATERIALS

Of the five summer institutes, three were held in the summers of 1953 and 1955. These were eight-week intensive training institutes in which difficult programs of mathematics were taught to social scientists. Two eight-week institutes were held in the summer of 1957, at Stanford University. In one of these a rigorous program of applications of mathematics in the social sciences was taught to college teachers of mathematics. The fifth institute consisted of five workshops, each concerned with helping social scientists, who had at least the mathematical background taught in the 1953 and 1955 summer institutes, to develop mathematical models in their own fields.

After the 1955 summer institutes the committee decided that it would not plan further intensive summer institutes for those with little mathematical training, since it was hoped that colleges and universities would make unnecessary Council sponsorship of further activities of this type.

The committee has supported the preparation of training materials through the following grants:

To the Mathematical Association of America, to assist its committee on the undergraduate mathematics program in writing *Universal Mathematics*;³

² *Ibid.*

³ *Part I, Functions and Limits: A Book of Experimental Test Materials*, preliminary edition prepared by the University of Kansas Department of Mathematics, 1954 Summer Writing Group (Lawrence: University of Kansas, September 1954, photo-offset); *Part II, Structures in Sets*, preliminary edition prepared by W. L. Duren, Jr. and D. R.

To Robert R. Bush, Robert P. Abelson, and Ray Hyman for preparation of *Mathematics for Psychologists: Examples and Problems*;⁴

To Samuel Goldberg, for preparation of the manuscript entitled "An Introduction to Difference Equations for Social Scientists," which is to be published by John Wiley & Sons;

To Gerard Debreu and Harold W. Kuhn, for assistance in the preparation of volumes dealing with mathematical economics; these are still in process.

It is also expected that some of the materials developed for and during the two 1957 institutes will be published. The committee early decided that it would not try to publish its own elementary textbook in mathematics for social scientists.

THE PRESENT SITUATION

Let us compare the present situation with that in which the committee was established. The differences are perhaps most striking in the following respects:

There is greater acceptance among social scientists of the desirability, if not the need, of the study of mathematics.

There is greater understanding among mathematicians that the applications of mathematics in the social sciences are serious mathematics.

There is fairly general acceptance of the need for the revision of the undergraduate mathematics curriculum to make it more satisfactory for the social scientist. Texts to facilitate this development are appearing, and the number of courses is growing.

There is fairly general agreement on the type of mathematics curriculum that social scientists should study.

Many universities and colleges have mathematical and statistical faculty members who have worked sufficiently on applications of mathematics in the social sciences to be able to make such applications, advise others about them, and teach mathematics to social scientists.

Many universities and colleges have social science faculty members who have used mathematics sufficiently in their own research to be able to guide, advise, and teach others to apply mathematics to social science problems.

There is more general understanding of the role of mathematics in social science research: that it is best used when casually used, that it is not a substitute for social science thinking, that it is not a temporary development but a continuing development.

Morrison (New Orleans, La.: Tulane University Book Store, 1955, photo-offset).

⁴ Social Science Research Council, 1956, photo-offset.

The number of social scientists who use mathematics or can read mathematical social science literature has greatly increased.

The committee's immediate tasks in pursuance of its original objectives might well be the following: to determine whether the material prepared in connection with the 1957 institutes should be published; to revise and amplify the 1955 statement of recommended policies, and possibly to relate it to the material just mentioned; to consider whether further institutes along the lines of one or both of the 1957 institutes would be useful in the future, and to review our position with respect to the earlier institutes; to encourage the development of social science courses, undergraduate and graduate, in which mathematics is used well (the lack of such courses is perhaps the greatest difficulty, today, in increasing the ability of social scientists to use mathematics); to survey the present state of the courses in mathematics available to social scientists and to continue efforts to improve those courses; to attempt to develop courses in social sciences that might be more appealing to students, especially graduate students, of mathematics and statistics than are most existing courses.

We turn now to the activities the committee might undertake in the light of the current situation. This subject is to be considered by the committee at its next meeting. I think it is appropriate, however, to indicate what may be the agenda of that meeting, taking into account comments and suggestions that have been made by various persons, particularly those at the two institutes held by the committee this past summer.

FUTURE ORIENTATION

To summarize the past and proposed future orientation of the committee, let me say that, essentially, all its activities have been focused on training. During the past five years we have tried to think of and carry through various programs that would improve the mathematical training of social scientists. For the future, the work of the committee might be concerned not only with training but also with research, and with the individual scholar and his problems in research, including those of publication. First, under a research-oriented program the committee might bring together in conferences or in summer workgroups persons from different universities who are interested in some special branch of mathematical social science and in much the same problems. Although college and university faculties today include increasing numbers of social scientists who have been working on some aspect of mathematical social science, it is unlikely that in any one university—with the exception of a very few—more than one person is

concerned with a particular aspect. It is almost certain that such persons would benefit from a summer spent together, and that they would gain from it many of the advantages normally enjoyed by members of large departments that are interested in much the same subject matter. Presumably, such groups should be chosen by invitation, mainly from persons beginning their careers as research workers.

A second type of summer group has been suggested by T. C. Koopmans: one in which some social scientists who have encountered hard problems in their own investigations would work with a group of research mathematicians and mathematical statisticians. Of course, to be successful plans for such summer sessions would have to be carefully developed and commitments secured far in advance.

George A. Miller and others have suggested a third type of enterprise which would be intended to bring to the attention of a wider group recent developments that are in progress and that seem likely to have stimulative value. The possibilities in this idea were illustrated in the 1957 institute in which Mr. Miller presented a mathematical theory of language. It would be easy to recall similar events that have happened in the past ten or fifteen years, and that might have had a stimulating effect a few years before the work actually came to the attention of a wide audience.

The time is now ripe to bring statistics into the work of the committee. For several reasons the committee has assumed in the past that it was intended only indirectly to improve the statistical training of social scientists. In the first place, the situation with respect to the teaching of statistics in colleges and universities was thought to be better than that with respect to mathematics. Second, the committee thought there would be a tendency for some persons to confuse statistics and mathematics and hoped to avoid that tendency by stressing that it was not concerned with statistical training. Third, the time required for statistical training at our summer institutes could only have been provided by reducing the time available for mathematical training. The committee thought, however, that strengthening the mathematical backgrounds of social scientists would make it possible to improve their statistical training as well. But with a program focused on research rather than on training would come the necessity of including statistics.

A fourth activity would bring together constructors of mathematical models, experimentalists, and mathematical statisticians who are all concerned with a relatively narrow part of a social science. They would be expected to cooperate in arriving at a satisfactory model, satisfactory experiments, and satisfactory methods of analysis.

Of course we should expect to receive many other suggestions; these are intended only to illustrate types of activities implied by the proposed shift in objectives.

The committee should also recognize that research workers who are specialists in the construction of mathematical models will find it relatively difficult to obtain positions in our colleges and universities under present

conditions of university organization, and the committee might well consider the implications of this problem. Similarly, the committee might give some attention to the problem of outlets for publication of work on applications of mathematics in the social sciences since this will probably present increasing difficulties for some time to come.

CONFERENCE ON POLITICAL THEORY AND THE ORGANIZATION AND PROCESSES OF MODERN DEMOCRACY

by J. Roland Pennock

As reported in the preceding issue of *Items* (page 37), the committee that administers the Council's program of fellowships in political theory and legal philosophy held a conference at Swarthmore College on June 12-14, 1957.¹ The purpose of the conference was, broadly, to contribute to the development of mutual understanding and greater ease of communication among younger scholars with converging interests in political theory and its application to the problems of modern democracy. It was hoped that the conference might advance our appreciation of the points at which research may contribute to political theory. Some of the participants tended to use a rigorously scientific approach, while others might more properly be designated as humanistic. For some, philosophy meant, or ought to mean, analytical philosophy. Others insisted on the importance to the theorist of direct insight or intuition; and a more elaborate metaphysical position also found support within the group.

It is of course difficult to appraise the extent to which the broad aims of the conference were achieved, or to point to concrete results. Most of the participants testified to substantial achievement; but such subjective evaluations, while encouraging to the committee, may be thought to lack probative force. Nevertheless, I shall attempt to indicate some positive accomplishments.

¹ The members of the sponsoring committee during 1956-57 were J. Roland Pennock, Swarthmore College (chairman); Herbert A. Deane, Columbia University; David Easton, University of Chicago; Norman Jacobson, University of California, Berkeley; Robert G. McCloskey, Harvard University; F. M. Watkins, Yale University; staff, Bryce Wood. (In addition to those named, Jerome Hall of Indiana University is a member of the committee during 1957-58.) The participants in the conference were Francis P. Canavan, S.J., St. Peter's College; John W. Chapman, Smith College; Samuel DuBois Cook, Atlanta University; David Cooperman, University of Minnesota; Laird Dunbar, University of Colorado; Andrew Hacker and H. Mark Roelofs, Cornell University; Henry S. Kariel and Herbert J. Spiro, Harvard University; David W. Minar, Columbia University; Addison Potter, Los Angeles State College; David G. Smith, Stanford University; Kenneth W. Thompson, Rockefeller Foundation; and Messrs. Easton, Pennock, and Wood.

DIVERGENT VIEWS AT THE CONFERENCE

Sharply divergent beliefs as to what social science research can contribute to political theory put in an early appearance. Some, even of those who had engaged in empirical research, held the view that its methods have little to contribute to political theory. The goal of political philosophy, said the proponents of this view, is insight; and its most effective vehicle of communication is that of metaphor. The matter of politics is so complicated, so subtle, so refractory and resistant to measurement that *in the large* it refuses to yield to the methods of science. Not that science lacks an important role in the study of politics. Rather, the contention was that over-all constructs, useful both for guiding the scientist and for putting his results in a frame suitable for evaluative purposes, call for imagination and creativity—and cannot be limited to what is measurable.

Even in the brief time at our disposal some progress was made toward achieving mutual understanding and appreciation between opposing points of view. By the time of the concluding session it was apparent, for example, that a philosophical realist and a nominalist could discuss the subject of civil rights with each other and be in agreement most of the time. Nor was the agreement solely as to conclusions; it reached well back into the area of vindication. One argues about rights, it was generally agreed, by relating them functionally to fundamental human needs. The right to privacy, the right to speak one's mind, or the right to equal protection of the laws must each be vindicated in this fashion. What are these needs? How do we substantiate them? With respect to the second of these questions, differences that can only be described as metaphysical put in a stubborn appearance. Some spoke of direct intuitive insight into one's own nature, and others of a rational knowledge that is outside the scientific realm, while the more scientifically minded turned to psychology to provide the answer. Finally, there were those who, either

distrustful of science or disillusioned about the present ability of psychology to provide the data we are seeking, looked elsewhere for a more objective foundation. This they found in history, in the Western tradition. Whether or not there is a structured human nature that is universal and eternal, and discoverable either by scientific or by rationalistic methods, they considered this tradition a foundation upon which those who inherit it can agree and from which they may take their departure in theorizing about appropriate institutions.

CONVERGING INTERESTS IN POLITICAL THEORY AND RESEARCH

While the discussion often concentrated on problems of method or of basic premises, the papers prepared for the conference were directed more to substantive than to methodological problems. The papers often suggested fruitful areas for research and for relating the work of the philosopher and that of the empiricist. More particularly, two types of suggestion emerged. The first had to do with the clarification of concepts or the formulation of issues—these for the guidance of research workers; the second pointed to the realm of facts or to causal theories relevant to the concerns of political philosophers. It was suggested, for instance, that a study of the *kibbutz* might aid in evaluating the degree to which privacy is a fundamental human need.

It was argued at some length that the concept of "responsibility," perhaps subdivided as to type or enriched by certain satellite concepts, is far more useful in the analysis of problems of political theory relating to most modern states than are the old terms of "freedom" and "authority." The conference did not provide opportunity to test this attractive notion, but it may lead to clearer thought than has often characterized discussion in the old terms. Yet manifestly the central concept, responsibility, is itself used in different senses, which are not yet sharply defined and provided with distinguishing nomenclature. Moreover, other terms that crop up in discussions of freedom—like individuality, self-development, constraint, consent, and many others—would need to be related to the new conceptual framework, if not redefined. And this work would have to be done before one could begin to test the new schema, to see whether it would lead to greater clarity or otherwise contribute to comparing and contrasting political systems in significant ways. Another suggestion, not new but freshly stated and forcefully supported, was that the area of "privacy" be split off from the old concept of "liberty"

for special study. Those more inclined to believe that scientific advances must build on the measurable could see in this suggestion a concept more tractable than the amorphous "liberty."

The point just made perhaps merges into my second category—subjects for empirical research that may be relevant to the philosopher's concerns. There were many other suggestions that belong in this class. For instance, how far and under what circumstances does the centralization of decision making limit individual responsibility? Or, alternatively, may it in some cases enlarge the area for private decisions? Questions like these are recognized as important but tend not to command the attention of either the theorist or the empirical scientist.

Other questions raised were: To what extent do democratic beliefs and values depend for their acceptance and effective institutionalization upon the acceptance of certain other beliefs and attitudes? Is liberal democracy, to be more specific, dependent for its success upon a traditional status system? Can "manipulation" be substituted for "ruling"? Has this happened in our society? If so, has it altered the character and quality of liberal democracy; and how do these alterations impinge upon the satisfaction of fundamental human needs? A vigorous presentation of a particular thesis with respect to one of these questions occupied one session of the conference, and comparable presentations might well challenge the scientifically minded to seek relevant data.

The conference raised and discussed other issues than those that have been mentioned here. The extent to which the great books on political theory contribute to modern political problems was not systematically canvassed, but one paper sought to show that the study of public opinion could gain both fruitful distinctions and valuable insights from these sources. Another participant urged the theorist not to neglect the role of political moralist, or the imaginative construction of ideal societies. For this type of activity as well as for the more mundane tasks of the political theorist a far wider acquaintance with the contributions of other social sciences is imperative. Not only do we need knowledge of other disciplines, but conferences and other means of facilitating communication would benefit the theorist both immediately and in the long run by stimulating research bearing on the problems he is seeking to solve.

The value of the conference must remain a matter for speculation. This brief report indicates the chairman's grounds for anticipating that the discussions will bear fruit in the future work of the participants.

CONFERENCE ON EARLY AMERICAN POLITICAL BEHAVIOR

by Richard P. McCormick

THE status of knowledge of American political behavior in the period 1790–1840 was the subject of exploratory discussions at a conference of historians that met at Rutgers University, June 12–14, 1957, under the auspices of the Council's Committee on Historical Analysis.¹ The broad purpose of the sessions was to consider the directions and forms that studies in this area might take in the future.

In attempting to evaluate the relevant literature—political biographies, institutional studies, monographs on individual states, and political narratives of national scope—the conference found that a major deficiency appeared to be the relatively narrow conception that guided many works. Each state has usually been treated as a unique entity, with little effort to develop comparisons with other states or to fit the state pattern into some larger unity. Institutional studies, such as those relating to suffrage, representation, or election procedures, frequently have lacked a dynamic quality that can be obtained only when institutions are viewed in operation in their environment. Too often works purporting to deal with political developments on the national scene have resorted to generalizations that could scarcely be reconciled with actual conditions on the state level. Political biographies, especially those of older vintage, have an unfortunate tendency to omit some aspects of the subject's political behavior and to include unduly laudatory characterizations.

On a strictly substantive level, also, the available literature exhibits a narrowness of scope. We know a good deal about the careers of individual statesmen, about the classic controversies over great national issues, about party conflicts in certain states, or about the presumed role of sections or classes in national politics. What we do *not* know, or know inadequately, could be recited at even greater length.

From another perspective, past studies were criticized for excessive preoccupation with these central questions: What did political parties stand for at any given time? Of what groups or classes were each of the

major parties composed? Important and even crucial though these questions are, it was agreed that other meaningful inquiries can and should be raised about American political behavior during the early period.

The extent to which politics absorbed the interests and energies of the people, especially before 1860, made it the major form of mass cultural expression, involving virtually every aspect of the American experience. Political history viewed from this perspective is not "past politics," compartmentalized and narrow; it is cultural history in the broadest meaning of that term. The greatest need, the most attractive opportunity, in this field of study, the conference concluded, is for the development and application of concepts that will relate political behavior to the whole of American culture.

As a part of or prerequisite for future endeavors to validate large concepts, there is need for well-designed descriptive analyses of aspects of political behavior. We have remarkably little information on how politics functioned during the first half-century of our national history, when our political behavior settled into patterns that have since undergone few basic changes. The standard work on early party organization was written more than fifty years ago and, despite its obvious inadequacies, has not been supplanted. The two authorities on colonial suffrage and elections are equally old, as is the most frequently cited work on nominating procedures. If we wish to learn the purposes for which parties were organized and the functions that they served, if we want to know what influenced the electorate and what attitudes prevailed toward political activity, new studies of these typical features of the political scene, the conference suggested, are essential.

For example, we need to investigate the legal and customary frameworks within which elections were conducted, the forms of party organization, the types of campaign appeals, the conditions that affected participation in elections, the character of party platforms, the systems of patronage distribution, the stability of party alignments, the media for the dissemination of political views, and the relationships that existed between various levels of the party organization. We should attempt to locate the focus of power within political organizations and to discover how decisions were made within the party structure.

Intensive case studies of the role of issues in American politics should endeavor to answer several questions: To what extent are "issues" merely the weapons of partisan warfare, forged primarily for the purpose of

¹ The members of the committee are Louis Gottschalk, University of Chicago (chairman); W. O. Aydelotte, State University of Iowa; Thomas C. Cochran, University of Pennsylvania; Merle Curti, University of Wisconsin; Roy F. Nichols, University of Pennsylvania; and David M. Potter, Yale University. The participants in the conference were Lee Benson, Columbia University; Richard H. Brown, University of Massachusetts; Noble E. Cunningham, Jr., University of Richmond; Richard P. McCormick, Rutgers University (chairman); John A. Munroe, University of Delaware; Roy F. Nichols, University of Pennsylvania; John J. Reed, Muhlenberg College; Charles G. Sellers, Jr., Princeton University; and Harry R. Stevens, Ohio University.

securing some political advantage? To what extent are they a reflection of basic disagreements which in turn shape the character of parties?

Studies of the voter in the political scene are conspicuously lacking. Difficult as it may be to get behind the election returns, the conference considered it important to attempt to do so, for the behavior of the voter must be made intelligible if we are to understand the democratic process. We should attempt to define the attitudes, the traditions, and the images that influenced voters. We are concerned with why men did or did not vote, as well as with the larger question of why they voted as they did. How did the voter take on a group or party identification? What stimulated him to political activity? It is appropriate to urge that investigations of such questions be conducted on all levels of government. Because of the peculiar nature of the political process in the United States, it is necessary to study political behavior in the nation, the state, the county, the town, and the ward.

Needed substantive inquiries could be listed at greater length, but to do so would obscure the overriding consideration that all such investigations should be made with reference to the total cultural setting.

The historian, working as he must with data about the past that are almost exclusively documentary, confronts a problem that is not shared by those social scientists who have direct access to living persons or who are concerned only with contemporary data. Accordingly,

his methods are limited by the kinds of sources with which he works. He uses such ingenuity as he possesses and any methods within his experience that seem appropriate to get at a historical situation.

In considering methods that might have value in historical studies of the political process, the conference discussed two approaches that are being tested by participants. First, where sufficiently detailed election statistics and complementary data regarding the composition of the electorate are available, it may be possible through rigorous analysis to document the behavior of voting groups. Second, the comparative approach might be employed to advantage in examining aspects of political behavior under differing conditions in different states. Such common elements of the political process as voter participation, conventions, or campaign methods can be studied from state to state to determine whether the presence or absence of certain factors influenced significantly the element under investigation.

The conference concluded that concepts and methods being used by students of contemporary political phenomena should be evaluated in terms of their adaptability to historical data. In probing the political behavior of the American people, in seeking to understand how the democratic process has functioned, and in relating political concerns to the totality of the American experience, the historian confronts an exceptionally challenging opportunity for giving a new synthesis to American history.

COMMITTEE BRIEFS

BUSINESS ENTERPRISE RESEARCH

C. Addison Hickman (chairman), Frederick E. Balderston, Howard R. Bowen, Mary Jean Bowman, J. Keith Butters, Albert G. Hart, George Katona, George W. Stocking.

The papers prepared for the conference on research on expectations, uncertainty, and business behavior, which was held by the committee in October 1955, and summarized in the September 1956 issue of *Items* (pages 32-38), have been revised in the light of the conference discussions. These papers, together with an introductory essay by Mary Jean Bowman, who developed the plans for the conference and subsequently organized the resulting materials, will be made available by the Council in January 1958 in a lithoprinted volume, at \$2.00 per copy.

ECONOMIC GROWTH

Simon Kuznets (chairman), Richard Hartshorne, Melville J. Herskovits, Edgar M. Hoover, Bert F. Hoselitz, Wilbert E. Moore, Joseph J. Spengler.

The State and Economic Growth, a volume of papers prepared for the conference held by the committee in October 1956 and edited by Hugh G. J. Aitken, is expected to be published next spring. A second paper by the chairman of the committee in the series summarizing the results of his comparative studies, "Quantitative Aspects of the Economic Growth of Nations: Industrial Distribution of National Product and Labor Force," was issued as a supplement to the July 1957 issue of *Economic Growth and Cultural Change*.

HISTORY OF SCIENCE

(Joint with National Research Council)

Richard H. Shryock (chairman), I. Bernard Cohen, George W. Corner, Henry Guerlac, Mark H. Ingraham, Robert K. Merton, H. L. Shapiro, Gordon R. Willey.

Under the auspices of the committee a conference on the history of science was held at Madison, Wisconsin, September 1-11, 1957. Mark H. Ingraham, Dean of the College of

Letters and Science at the University of Wisconsin, undertook the initial arrangements, and the program was largely planned by his colleague, Marshall Clagett, Professor of the History of Science. A grant to cover conference expenses was made to the University by the National Science Foundation. The program was extensive: 16 formal papers were read, a slightly larger number of formal comments were delivered, and some 70 persons attended. Most of them came from American institutions, but one Dutch and three English scholars participated. The University provided a convenient building where most of the participants were housed and were able to dine together. The surroundings thus lent themselves to informal associations and give-and-take over the ten-day period.

The greater part of the formal program related to the history of European thought in the physical sciences. Two papers on classical and medieval dynamics were followed by a number on certain periods (the Renaissance, the French Revolution, the nineteenth century), and by others on such special themes as the role of nonscientific personnel (artists, craftsmen), and the history of certain basic ideas (conservation, evolution). One paper was devoted to each of three areas outside the history of physics, that is, to chemistry (1600-1800), to biology in the nineteenth century, and to social science in relation to biology in this same era.

The program thus ran the gamut of subjects in which most scholars in this field are interested. The relative lack of papers on the history of biology and of social science apparently reflected a lack of scholarly personnel in these areas. The neglect of biology and of social science, however, was not as great as at first appeared, since certain types of interpretive problems which arose in discussing the physical disciplines were also pertinent to the biological and social. No papers were given on these problems as such; but they kept coming up in the lively and sometimes protracted discussions which followed formal statements. Notable was the debate on the nature and significance of precursors in the context of major "discoveries."

It is expected that the papers and probably the formal comments which followed each of these will be published by the University of Wisconsin Press. One may anticipate that future reviewers will note "varying merit" in the essays; but certainly most of them were of high quality. Equally valuable were the open discussions, which must have been stimulating to all concerned—and particularly to the considerable number of young scholars present.

One object which the committee had originally in mind—to attract persons who are primarily scientists to the history of their fields—did not materialize. Very few such persons were present, presumably because it was difficult to identify those whose interests were even potentially slanted in this direction. Apparently, the history of science as an academic discipline has been, or is being, taken over by historians. This professional trend has, no doubt, both advantages and disadvantages. One may ask whether the same generalization applies, or may apply in the future, to the history of the social sciences. Hitherto, studies in this field have been largely the work of social scientists. Can this be continued, or is there a role here also for those devoted to intellectual history in general?

R. H. S.

NEAR AND MIDDLE EAST

T. Cuyler Young (chairman), Hamilton A. R. Gibb, J. C. Hurewitz, Majid Khadduri, William D. Schorger, Wilfred C. Smith; *staff*, Dankwart A. Rustow, Joseph B. Casagrande.

The committee regards the provision of more adequate bibliographical services and resources as important for the development of research on the Near and Middle East. Toward this end, David Wilder, Associate Director of Libraries at Ohio State University, has been engaged to develop plans for the establishment and operation of a bibliographical service center for Near and Middle Eastern materials. Mr. Wilder's report will be based in part on an earlier survey of bibliographical resources and needs conducted for the committee by Harry W. Hazard. A summary of Mr. Hazard's findings and recommendations prepared by the committee was circulated among scholars and librarians in the spring of 1957.

In cooperation with the Library of Congress and the American Library Association the committee is encouraging the adoption of a standard transliteration system for Arabic. At a meeting on September 20, the subcommittee on transliteration—Hamilton A. R. Gibb (chairman), Herbert Paper, Dankwart A. Rustow, William J. Watson—reviewed in detail a proposed transliteration system prepared by the Orientalia Processing Committee of the Library of Congress. The subcommittee's recommendations will be considered by the special committee on Near Eastern materials of the American Library Association to which they have been forwarded. The Council's committee is hopeful that it may also be of assistance in preparing similar standard transliteration systems for Persian and Ottoman Turkish.

PERSONNEL

INTERNATIONAL CONFERENCE TRAVEL GRANTS

The first awards under the Council's new program of international conference travel grants (which was announced in *Items*, September 1957, page 40) were made on October 17 to the following persons, for attendance at the Ninth

Pacific Science Congress, held in Bangkok, November 18-December 9, 1957:

Norton S. Ginsburg, Associate Professor of Geography, University of Chicago.

Ward H. Goodenough, Associate Professor of Anthropology, University of Pennsylvania.

Melford E. Spiro, Professor of Anthropology, University of Washington.

The awards were made by a subcommittee—Ralph L. Beals (chairman), Rupert Emerson, and John Useem—of the Committee on International Conference Travel Grants, of which Mr. Beals is a member.

DIRECTORS AND OFFICERS OF THE COUNCIL

At the annual meeting of the board of directors of the Council held in September, Douglas McGregor of Massachusetts Institute of Technology, Richard H. Shryock of Johns Hopkins University, Herbert A. Simon of Carnegie Institute of Technology, and Malcolm M. Willey of the University of Minnesota were elected directors-at-large for the two-year term 1958-59.

Conrad Taeuber of the Bureau of the Census was elected chairman of the board of directors; John Perry Miller of Yale University, vice-chairman; Frederick Mosteller of Harvard University, secretary; and Ralph J. Watkins of the Brookings Institution, treasurer. The following members of the board were elected as its Executive Committee: Schuyler C. Wallace of Columbia University (chairman), Gabriel A. Almond of Princeton University, Carroll L. Shartle of Ohio State University, C. Vann Woodward of Johns Hopkins University, and Donald Young of the Russell Sage Foundation. Douglas McGregor was named chairman of the Committee on Problems and Policy; and V. O. Key, Jr. of Harvard University and David M. Potter of Yale University were elected members of the committee. Its other members are Wilbert E. Moore, Frederick Mosteller, Joseph J. Spengler, and ex officio: Pendleton Herring, Conrad Taeuber, and John Perry Miller.

COUNCIL STAFF

Donald G. Marquis, Professor of Psychology at the University of Michigan (on leave of absence), joined the staff of the Council on September 15, 1957. Mr. Marquis had previously served for eight years as a member of the Council's board of directors, as its vice-chairman during the past year, as a member of the Committee on Problems and Policy since 1954, and as a member of the Executive Committee, 1952-54. He is currently a member of the Committee on Research Training, and has served the Council in numerous other capacities.

APPOINTMENTS TO COMMITTEES

Lyle H. Lanier of the University of Illinois has been reappointed chairman of the Committee on Faculty Research Fellowships for the year 1957-58. H. Field Haviland, Jr. of the Brookings Institution, Kenneth M. Stampp of the University of California, Berkeley, and Edward H. Spicer of the University of Arizona are newly appointed members; William H. Nicholls of Vanderbilt University,

and John W. Riley, Jr. of Rutgers University have been reappointed to the committee.

R. A. Gordon of the University of California has been reappointed chairman of the Committee on Grants-in-Aid for 1957-58. John G. Darley of the University of Minnesota, John D. Lewis of Oberlin College, and Vincent H. Whitney of Brown University have been designated members; E. Malcolm Carroll of Duke University, and John Hope Franklin of Brooklyn College have been reappointed.

Earl Latham of Amherst College has been reappointed chairman of the Committee on Social Science Personnel, which has charge of the Council's research training fellowship program. Newly appointed to the committee for 1957-58 is Gardner Ackley of the University of Michigan; Robert E. L. Faris of the University of Washington, Ward H. Goodenough of the University of Pennsylvania, Wayne H. Holtzman of the University of Texas, and Paul Webbink have been reappointed.

A Committee on Grants for Research on Governmental Affairs has been appointed to administer the new program of senior research awards in American governmental affairs, which was announced in *Items*, June 1957, page 24. The members of the committee are William Anderson, University of Minnesota; Robert E. Cushman, Cornell University; Dean E. McHenry, University of California, Los Angeles; Elmer B. Staats, Operations Coordinating Board; and Benjamin F. Wright, Smith College.

Jerome Hall of Indiana University has been appointed to the Committee on Political Theory and Legal Philosophy Fellowships for 1957-58.

Arthur W. Macmahon of Columbia University has been named chairman of the Committee on Research Training for 1957-58.

Conrad Taeuber, as chairman of the board of directors of the Social Science Research Council, has succeeded Fred Eggan as a member of the Conference Board of Associated Research Councils. M. H. Trytten of the National Research Council has been designated chairman of the Conference Board for 1957-58, and Pendleton Herring, vice-chairman.

The American Council of Learned Societies and the Social Science Research Council have appointed the following persons as members of the Joint Committee on Slavic Studies for 1957-58: William B. Edgerton, Columbia University (chairman); Robert F. Byrnes, Indiana University (secretary); Abram Bergson, Harvard University; C. E. Black, Princeton University; Merle Fainsod, Harvard University; Chauncy D. Harris, University of Chicago; Charles Jelavich, University of California, Berkeley; Henry L. Roberts, Columbia University; Marshall D. Shulman, Harvard University; Ernest J. Simmons, Columbia University; S. Harrison Thomson, University of Colorado; and Sergius Yakobson, Library of Congress. The present members of the Subcommittee on Grants are Abram Bergson (chairman), Frederick C. Barghoorn of Yale University, Deming Brown of the University of Michigan, Oscar Halecki of Fordham University, and Chauncy D. Harris.

FORD FOUNDATION GRANT TO THE COUNCIL

A GRANT of \$860,000 for a five-year period was made to the Social Science Research Council by the Ford Foundation at a meeting of its Board of Trustees in September 1957. This grant will enable the Council to support several broad categories of work in the behavioral sciences:

1. Small grants-in-aid for research in these fields will be administered in conjunction with the Council's programs of grants to individual scholars.

2. During the five-year period of the new grant, awards of \$4,000 can be made to persons engaged in behavioral research, particularly in social anthropology and psychology and sociology. These funds are to be used in the discretion of the recipient to further his own research, and awards will be made in the light of the recipient's record in research rather than on the merits of a specific proposal.

3. A substantial proportion of the new funds has been allocated for the support of fellowships for the completion of doctoral dissertations by graduate students, as announced below.

4. A part of the grant has been allocated for experimental efforts concerned with the use of electronic computers for the simulation of logical processes in human thinking; the first project under this program will be a training institute for social scientists concerned with research on higher mental processes, to be held in the summer of 1958, as announced on page 56.

5. Support of research planning and appraisal projects on a variety of topics can be provided also with the assistance of this new grant. Further announcement will be made as plans mature.

RESEARCH TRAINING FELLOWSHIP PROGRAM BROADENED TO PROVIDE FOR COMPLETION OF DOCTORAL DISSERTATIONS

BEGINNING in 1958 Social Science Research Council pre-doctoral research training fellowships may provide support for completion of doctoral dissertations. This new policy has been made possible by a grant received from the Ford Foundation after publication of the Council's general announcement of fellowships for 1957-58.

In this first year of the broadened program, appointments will be offered for periods ranging up to a year to be devoted exclusively to completion of dissertations for which the basic research is already completed or well under way. Applications will be accepted both from present or recent research training fellows of the Council, and from other doctoral candidates giving comparable promise of successful research careers.

Under the new terms of the research training fellowship program, it will also be possible to submit an application for both advanced research training and completion of a dissertation, with fellowship support for a total period of at least a year and in some cases as long as two years. Heretofore most research training fellows have engaged exclusively in research or further study during the fellowship year, leaving the dissertation to be completed subsequently.

Detailed requirements, rates of stipends, and application procedure are set forth in pages 1-7 of the Council's general announcement of fellowships and grants for 1957-58, which will be furnished on request, addressed to the office of the Council. Applications should be filed not later than January 6, 1958.

INTERNATIONAL CONFERENCE TRAVEL GRANTS

THE program of travel grants announced in the September issue of *Items* (page 40) has been extended to include the Congress of the International Association of Applied Psychology, Rome, April 9-14, 1958. Applications for this congress on forms supplied by the Council should be received no later than January 6, 1958. Grants will be announced on or before February 1. The other conferences for

which applications, as previously announced, will be accepted not later than February 1, 1958 are: International Congress of Americanists, San José, Costa Rica, 1958; International Conference of Agricultural Economists, New Delhi, 1958; International Statistical Institute meeting, Brussels, 1958; Congress of the International Political Science Association, Rome, 1958.

CONTENTS OF ITEMS, VOLUMES 9-II (1955-57)*

ARTICLES

- Almond, Gabriel A. *The Seminar on Comparative Politics, June 1956*, 10:45
- Black, C. E. *Contributions of the Joint Committee on Slavic Studies to the Advancement of Research in Its Field*, 9:40
- Bowman, Mary Jean. *The Conference on Research on Expectations, Uncertainty, and Business Behavior*, 10:32
- Bruner, Edward M. *Differential Culture Change: Report on the Interuniversity Summer Research Seminar, 1956*, 11:1
- Casagrande, Joseph B. *The Southwest Project in Comparative Psycholinguistics: A Progress Report*, 10:41
- Clausen, John A. *Social Science in the Mental Health Field*, 9:37
- Council Fellowships and Grants for Research, 1957-58, 11:32
- Grants for Field Studies of Political Groups: A New Program of the Committee on Comparative Politics, 10:1
- Grants for Research on American Governmental Processes: A New Program of the Committee on Political Behavior, 10:16
- Grants for Research on Problems of National Defense, 1939-55, 10:17
- Hart, Clyde W. *Survey Methods in Research on Health Problems: A Report on the Summer Research Training Institute, 1956*, 11:16
- Herring, Pendleton. *International Social Science Council Conference*, 9:1
- Hoebel, E. Adamson. *Law and Social Relations: A Report on the Summer Research Training Institute, 1956*, 11:4
- Katcher, Allan. *Research on the Behavior of Small Groups: Report on the Monterey Conference*, 9:31
- Key, V. O., Jr. *Strategies in Research on Public Affairs*, 10:29
- Kuznets, Simon. *Comparative Study of Long-Term Records of Economic Growth*, 9:42
- Leighton, Alexander H. *Explorations in Social Psychiatry*, 11:26
- Madow, William G. *Activities of the Committee on Mathematical Training of Social Scientists, 1952-57*, 11:44
- Marquis, Donald G. *Social Science and UNESCO: Report on the Ninth General Conference in New Delhi, 1956*, 11:13
- Matrilineal Descent Systems: A Preliminary Statement about the Summer Seminar, 9:5
- McCormick, Richard P. *Conference on Early American Political Behavior*, 11:49
- Miller, George A. *Applications of Mathematics in Social Psychological Research*, 11:41
- Pennock, J. Roland. *Conference on Political Theory and the Organization and Processes of Modern Democracy*, 11:47
- Perception of Persons: Report of the Interuniversity Summer Research Seminar, 10:2
- Recommended Policies for the Mathematical Training of Social Scientists, 9:13
- Research on State Politics: A New Program of Grants-in-Aid, 9:25
- Shryock, Richard H. *The History and Sociology of Science*, 10:13
- Smith, M. Brewster. *The Conference on Cross-Cultural Research on Personality Development*, 9:27

* An index to the contents of *Items*, Vols. 1-2 (1947-48) was published in Vol. 3, No. 1 (March 1949), pp. 11-12, and to Vols. 3-8 (1949-54) in Vol. 8, No. 4 (December 1954), pp. 49-51.

Washington Staff of the Council Moves to New York, 11:25

Wood, Bryce. *Report on the Conference on National Security Policy: Problems of Research and Teaching*, 11:29

COMMITTEE BRIEFS AND OTHER REPORTS

- Analysis of Economic Census Data, 10:48; 11:35
- Business Enterprise Research, 10:7, 32; 11:50
- Census Monographs, 9:34; 10:7, 18; 11:5
- Civil-Military Relations Research, 9:11; 10:17, 26
- Comparative Politics, 9:34; 10:1, 45; 11:8, 35
- Cross-Cultural Education, 10:7, 19
- Economic Growth, 9:42; 10:67, 48; 11:6, 36, 50
- Faculty Research Fellowships, 9:18; 10:21; 11:19
- Grants-in-Aid, 9:22; 10:25; 11:21
- Historical Analysis, 11:36, 49
- Historical Statistics, 10:49
- History of Science, 10:13; 11:50
- International Conference Travel Grants, 11:51
- International Exchange of Persons, 9:8, 24; 10:12, 19; 11:12
- Labor Market Research, 10:8
- Linguistics and Psychology, 9:17; 10:8, 41
- Mathematical Training of Social Scientists, 9:13, 23; 11:6, 9, 41, 44
- Migration Differentials, 10:8
- National Security Policy Research, 10:17; 11:8, 22, 29
- Near and Middle East, 10:19; 11:6, 24, 36, 51
- Pacific Coast Committee on Social Statistics, 9:9, 34; 10:49
- Personality Development, 9:10, 27
- Political Behavior, 9:10, 18, 25; 10:16, 26, 29; 11:8, 23, 38
- Political Theory and Legal Philosophy Fellowships, 9:21; 10:24; 11:20, 37, 47
- Preventive Medicine and Social Science Research, 10:9
- Psychiatry and Social Science Research, 9:10, 37; 11:26
- Research Training, 9:35, 48; 10:9, 20, 49, 52; 11:4, 6, 10, 16, 56
- Scaling Theory and Methods, 11:37
- Slavic Studies, 9:36, 40; 10:21, 27; 11:7, 23, 38
- Social Science Personnel, 9:19; 10:21; 11:19
- Undergraduate Research Training, 9:20, 35; 10:22, 23, 38; 11:20, 38

INTERUNIVERSITY SUMMER SEMINARS

- American Diplomatic History, 10:6
- Cognition and Perception of Persons, 9:17; 10:2
- Comparative Study of Political Leadership, 9:17
- Differential Culture Change, 10:6; 11:1
- Human Motivation, 9:17
- Interuniversity Summer Research Seminars, 1955, 9:16
- Interuniversity Summer Research Seminars, 1956, 10:6
- Kinship Research, 9:5
- Presidential Nominating Politics, 9:16
- Theories of Economic Growth, 10:6

PERSONNEL APPOINTMENTS

- Committee Memberships, 9:12, 47; 10:11, 50; 11:11, 38, 52
- Directors of the Council, 9:11, 47; 10:9, 50; 11:7, 52
- Faculty Research Fellowships, 9:18; 10:21; 11:19
- Faculty Research Grants, 11:22
- First-Year Graduate Study Fellowships, 9:20; 10:22; 11:20, 38
- Grants-in-Aid, 9:22; 10:25; 11:21
- Grants for Field Studies of Political Groups in Foreign Areas, 11:8

Grants for Research on American Governmental Processes, 11:8, 38
 Grants for Research on History of American Military Policy, 9:11; 10:26; 11:22
 Grants for Research on National Defense Problems, 11:8
 Grants for Research on State Politics, 10:26; 11:23
 Grants for Slavic and East European Studies, 10:27; 11:23
 International Conference Travel Grants, 11:51
 Officers and Staff of the Council, 9:47; 10:50; 11:52
 Political Theory and Legal Philosophy Fellowships, 9:21; 10:24; 11:20
 Research Training Fellowships, 9:19; 10:21; 11:19
 Summer Institutes in Mathematics, 9:23; 11:9
 Summer Research Training Institutes, 10:9; 11:10
 Undergraduate Research Stipends, 9:20, 35; 10:23, 38

ANNOUNCEMENTS

Faculty Research Grants, 10:40
 Fellowships for Completion of Doctoral Dissertations, 11:53
 Fellowships, Grants, and Summer Training Institutes, 10:39; 11:32
 Ford Foundation Grant to the Council, 11:53
 Fulbright Grants, 9:24; 10:12; 11:12
 Grants for Research on the Near and Middle East, 11:24
 Grants for Slavic and East European Studies, 9:36
 International Conference Travel Grants, 11:40, 53
 Senior Research Program in Governmental Affairs, 11:24
 Summer Research Training Institutes, 9:48; 10:39, 52; 11:56

PUBLICATIONS

Books, 9:12, 36; 10:12, 28; 11:12, 55
 Census Monographs, 9:24, 36; 10:12, 28, 40, 51; 11:11, 39, 55
 Council Series, 9:12, 24, 36; 10:11, 27, 40, 51; 11:11, 39, 55
 Cross-Cultural Education Monographs, 10:12, 28, 40, 51; 11:12, 39, 55

PUBLICATIONS

COUNCIL SERIES

Migration and Mental Disease: A Study of First Admissions to Hospitals for Mental Disease, New York, 1939-1941, by Benjamin Malzberg and Everett S. Lee, with an introduction by Dorothy S. Thomas. March 1956. 152 pages. \$1.50.

The Business Enterprise as a Subject for Research, Pamphlet 11, by Howard R. Bowen. May 1955. 111 pages. \$1.25.

The Council's monographs, bulletins, and pamphlets are distributed from the office of the Council, 230 Park Avenue, New York 17, N. Y.

CENSUS MONOGRAPHS

These volumes are sponsored by the Committee on Census Monographs in cooperation with the Bureau of the Census, and are published by John Wiley & Sons, New York:

American Agriculture, by Ronald L. Mighell. April 1955. 199 pages. Cloth, \$6.50.

Income of the American People, by Herman P. Miller. October 1955. 222 pages. Cloth, \$6.50.

Immigrants and Their Children, 1850-1950, by E. P. Hutchinson. August 1956. 405 pages. Cloth, \$7.50.

Social Characteristics of Urban and Rural Communities, 1950, by Otis Dudley Duncan and Albert J. Reiss, Jr. October 1956. 458 pages. Cloth, \$7.50.

American Families, by Paul C. Glick. February 1957. 254 pages. Cloth, \$6.00.

American Housing and Its Use, by Louis Winnick. March 1957. 157 pages. Cloth, \$5.50.

Residential Finance, 1950, by Richard U. Ratcliff, Daniel B. Rathbun, and Junia H. Honnold. October 1957. 190 pages. Cloth, \$6.00.

Farm Housing, by Glenn H. Beyer and J. Hugh Rose. November 1957. 206 pages. Cloth, \$6.00.

America's Children, by Eleanor H. Bernert. December 1957. 190 pages. Cloth, \$6.00.

The Changing Population of the United States, 1790-1955, by Conrad Taeuber and Irene B. Taeuber. December 1957. About 344 pages. Cloth, \$7.50.

CROSS-CULTURAL EDUCATION MONOGRAPHS

These monographs are sponsored by the Committee on Cross-Cultural Education and are published by the University of Minnesota Press, Minneapolis:

The American Experience of Swedish Students, by Franklin D. Scott. June 1956. 142 pages. Cloth, \$3.00.

Indian Students on an American Campus, by Richard D. Lambert and Marvin Bressler. December 1956. 133 pages. Cloth, \$3.00.

No Frontier to Learning: The Mexican Student in the United States, by Ralph L. Beals and Norman D. Humphrey. August 1957. 159 pages. Cloth, \$3.25.

OTHER BOOKS

Explorations in Social Psychiatry, edited by Alexander H. Leighton, John A. Clausen, and Robert N. Wilson. New York: Basic Books, December 1957. About 464 pages. Cloth, \$6.75.

Isolation and Security, edited by Alexander DeConde. Durham, N. C.: Duke University Press, 1957. 215 pages. Cloth, \$4.50. Prepared by members of the 1956 inter-university summer research seminar on American diplomatic history.

SOCIAL SCIENCE RESEARCH COUNCIL

230 PARK AVENUE, NEW YORK 17, N. Y.

Incorporated in the State of Illinois, December 27, 1924, for the purpose of advancing research in the social sciences

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SUMMER INSTITUTES TO BE HELD IN 1958

APPLICATIONS for admission to three institutes to be held in the summer of 1958 will be accepted through February 1. These institutes, like those previously sponsored by the Council's Committee on Research Training, are designed to give research workers, normally of postdoctoral standing, an opportunity to become familiar with research methods, theories, or data that are relevant to their research interests but have not been fully accessible to them.

Enrollment in each institute will be limited as indicated below. The institutes will not confer academic credits. Stipends and travel allowances will be offered by the Council to participants whose expenses are not defrayed by their own institutions or other sources. No tuition fees will be charged.

The following brief descriptions of the institutes are amplified in separate circulars. These circulars and application forms will be furnished on request addressed to the Social Science Research Council, 230 Park Avenue, New York 17, N. Y.

ANALYSIS OF ELECTORAL BEHAVIOR

Place: Survey Research Center, University of Michigan, Ann Arbor

Dates: June 23 - August 15, 1958 (eight weeks)

Co-sponsor: Department of Political Science, University of Michigan

Staff: Angus Campbell (Director), Warren E. Miller, and Philip Converse of the Survey Research Center

Program: The program will provide opportunity for social scientists of various disciplines to become familiar with the methods and techniques employed by the Survey Research Center in research on elections, and to participate in exploiting some significant bodies of data that the Center has accumulated. The Center will make available to participants data from its study of the 1956 national election. Each participant will be expected to plan and initiate during the institute a research project utilizing these or other relevant data. Seminar meetings and conferences with the Survey Research Center staff will afford opportunities for criticism and guidance as individuals' research plans are developed. Participants in the institute may enroll in formal courses in survey research techniques which will be offered by the University. It is assumed, however, that the participants will already be familiar with the elements of survey research and will devote only a minor fraction if any of their time to attendance in formal courses.

Number of participants: About 8

JUDICIAL PROCESS

Place: University of Wisconsin, Madison

Dates: July 7 - August 22, 1958 (seven weeks)

Staff: Carl A. Auerbach, University of Wisconsin Law School, and William M. Beaney, Princeton University Department of Politics (Co-directors) and visiting seminar leaders: Justice Talbot Smith, Supreme Court of Michi-

gan; J. Willard Hurst, University of Wisconsin Law School; Bernard Schwartz, New York University Law School

Program: The institute will function as a seminar for research scholars in the social sciences (who will not be expected to have had formal legal training) for intensive study of the methods and processes of judicial and other legal decisions. As a central theme the seminar will examine a selected problem of wide public concern, comparing judicial, legislative, and administrative solutions. Other substantive materials will be introduced where relevant. Cases and other readings will provide opportunities for study of the technique of case analysis, methods of judicial reasoning, the theory of precedent under the common law, the adversary nature of litigation, the role of lawyers in the development of the common law, the jury system, and the judge as policy maker. Attention will also be given to nonlegal factors in the total social process that affect the functioning of legal institutions: customary practices and attitudes, private agreements, and pressures from interest groups. In addition to reading materials presented by the seminar leaders, each participant will be expected to prepare a paper on a topic related to the subject of the seminar.

Number of participants: About 15

SIMULATION OF COGNITIVE PROCESSES

Place: RAND Corporation, Santa Monica, California

Dates: June 30 - July 18, 1958 (three weeks), optional pre-session, June 23-29

Staff: Herbert A. Simon, Carnegie Institute of Technology, and Allen Newell, RAND Corporation (Co-directors); J. C. Shaw, RAND Corporation; guest lecturers: Carl I. Hovland, Yale University; George A. Miller, Harvard University; Marvin Minsky, Massachusetts Institute of Technology

Program: The institute will focus on recently developed techniques for using digital computers to manipulate symbolic nonnumerical information (as distinguished from conventional arithmetic and statistical computation), and hence as tools for studying human cognitive processes. Participants will study the rationale and technique of using computer programs as theories of human problem solving, concept formation, and social interaction. The program is designed for research workers in any social science discipline who intend to pursue research on higher mental processes. During the first two weeks, half time will be devoted to training in computer languages suitable for programming complex processes, and half time to training in writing programs that correspond to human problem solving and other cognitive processes. During the final week extensions of present techniques and applications to new areas of human behavior will be explored. During an optional week preceding the session, participants who have not had a previous introduction to computers will receive elementary training in programming; applicants with some knowledge of programming should apply only for the basic three-week period, June 30 - July 18.

Number of participants: 5 to 25

